

STATINTL

Next 16 Page(s) In Document Exempt

30 March 1964

25X1A

25X1A

TO: [REDACTED]

In answer to the questions from you and [REDACTED] of March 26, 1964, I submit the following information: 25X1A

- 1) The field mod kit for the drogue ripcord cover flap -- Three kits and the installation info will be in your hands no later than April 2nd, 1964. The balance of thirty-four (34) kits to be in your hands no later than April 13th, 1964.
- 2) Main quarter bag replacement for S/N 7 will be in your hands no later than April 2nd, 1964.
- 3) The questionable repair on the drogue chute risers on S/N's 21 and 23 has been explained by [REDACTED]. The condition was remedied by removing the light sewing from the confluence point to the suspension line attachment point, and resewing them properly. The problem arose because one riser was stretched more in the original sewing. The connection at the male drogue link was not touched. I assume that this info makes the canopies acceptable as is. Please confirm. 25X1A
- 4) [REDACTED] has conferred with his people and Wright Field and has come up with the following information:
 - a) The bungees will be increased in length. Definite lengths will be established and the information will be sent to you for your approval, before retro-fitting all units. This info should be in your hands no later than April 17, 1964.
 - b) Dot fasteners are standard on ripcord cover flaps for the USAF. The length of stud used by [REDACTED] is compatible with installation standards. If you wish to change to glove fasteners please send me a written request.

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- c) [redacted] and Wright Field both agree that the locking loop bight may be rotated 90° and extend through the loops by 1/2 inch minimum, as requested by you. The only stipulation is that the loop of the innermost line must be outside the locking loops. The parachute packing instructions will be revised and new pages sent to you as soon as they are available.

Very truly yours,

25X1A

25X1A

p

cc:

11 March 1964

25X1A

Dear []:

I'm sorry about the mix up in the mailing
of the minutes of your meeting on March 5th.
Enclosed is a copy of same for your information.

Thank you.

[]

Secretary,

[]

Office

25X1A

25X1A

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MINUTES OF MEETING MARCH 5, 1964

IN ATTENDANCE:



25X1A

The meeting was held to discuss the possible parachute modifications. It was agreed to provide a parachute mockup within ten days for evaluation. This first mockup will be in accordance with Approach I listed below.

Firewel will supply old harnesses, canopies etc. for the mockup. In addition, a wooden mockup with cable housings, 'green apple' etc., representing the new "one pan" concept, will be provided.

Approach I

1. Utilize new single pan concept.
2. Provide buttocks clearance room.
3. Reduce pack thickness.
4. Maintain pack density.
5. Rotate drogue releases 180°.
6. "Y" connection cable housings to drogue release.
7. Reroute 'green apple' to right side (also automatic emergency oxygen actuator lanyard).
8. Same present pack.
9. Investigate flat dot-fasteners for back flaps.

Approach II

1. Consider use of 4-pin pack
2. Increase height of pack 2".
3. Possibly turn drogue pack?
4. Raise pan in pack to fill void at top of pack (i.e., reverse top three mounting holes - change hole patterns).
5. Same as items 2, 3, 4, 5, 6, 7, 9 in Approach I.

Minutes of Meeting
March 5, 1964

-2

Other Possible Improvements

Seat

1. Remove the top $1/4$ " diameter ridge on the seat for approximately $4\ 1/2$ " to 5" in the center section.
2. Possibly recess the seat $1/4$ " deep $4\ 1/2$ " to 5" wide through the center of the seat.

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OSA 1467-64

25X1A

AM-1077

10 March 1964

25X1A

25X1A

Please return
to

Dear Harry:

Enclosed are two (2) copies of Technical
Manual, DND-050, Parachute Handbook. I am also
enclosing a photograph and a sketch that [redacted]
[redacted] made as a result of his trip last week.

25X1A

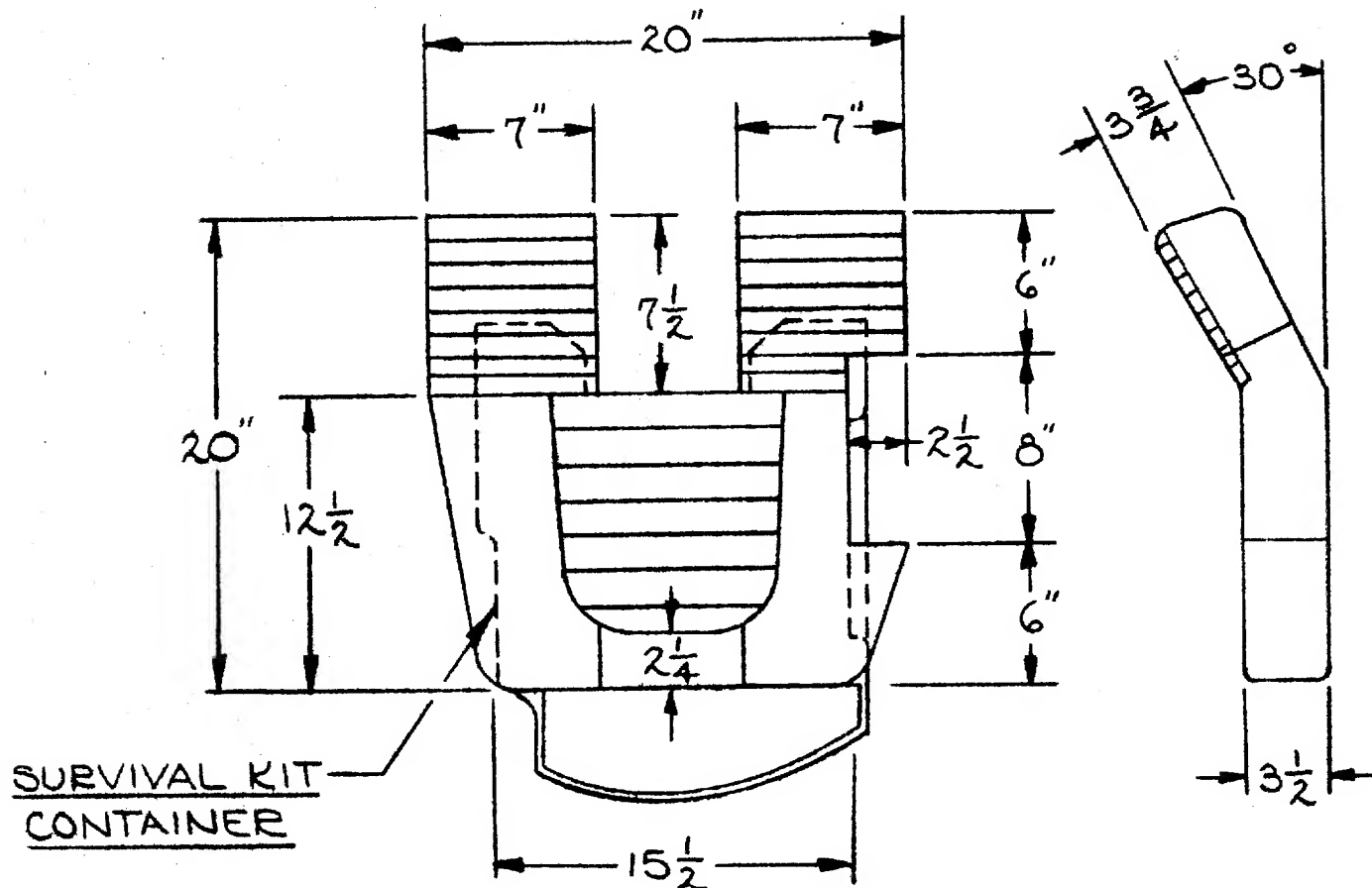
I am sure you will be interested in these
items.

Very truly yours,

25X1A

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Encl.



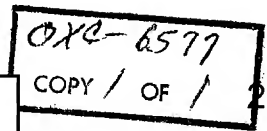
GREEN LEATHERETTE OVER SOFT FOAM (ROUGHLY THE SAME DENSITY AS F-104 CUSHION). SPRING STEEL SHEET UNDER FOAM EXTENDING OUT INTO THIGH SUPPORTS BENT UP AT THE 30° ANGLE.

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25X1A

Approved For Release 2002/07/30 : CIA-RDP75B00285R000300180003-7

6 March 1964




TO: Harry Collins

Dear Harry:

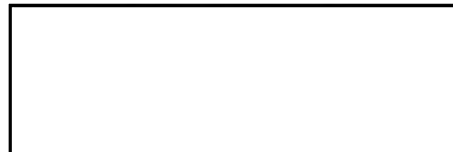
Enclosed are your copies of the following reports:

Meeting Report - March 5th, 1964
Our Facility.

Meeting Report - February 28th, 1964
 Report

25X1A

Very truly yours,



25X1A

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Encl.

MINUTES OF MEETING MARCH 5, 1964

IN ATTENDANCE:



CXC-6577

COPY 1 OF 1

25X1A

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Approach II

1. Consider use of 4-pin pack
2. Increase height of pack 2".
3. Possibly turn drogue pack?
4. Raise pan in pack to fill void at top of pack (i.e., reverse top three mounting holes - change hole patterns).
5. Same as items 2, 3, 4, 5, 6, 7, 9 in Approach I.

OXC-6577
COPY 1 OF 1

TRIP REPORT

-- 28 FEBRUARY 1964

PERSONS CONTACTED:

The purpose of the trip was to coordinate with Joe and his people the integration of the mask into the helmet. The notes of the meeting of February 13th were used to establish the ground rules.

Joe's people were working on a very thin (dipped) mask which was suspended over a light weight plastic frame, this mask may be developed further. The most critical interference area will be at the chin and helmet ledge. The MSA "Comfo" masks which I provided were as good or possibly better in this area and appears to have all of the characteristics we are looking for. It was agreed that the MSA "Comfo" mask had excellent contour, inner seal and properly located flats to which the hardware can be mounted. We decided to proceed with this mask for Phases I and II. Modification or customizing may be desired for Phase III.

Joe's people had evaluated all of the problem areas but had not yet attempted a mock-up. We mocked up the planned configuration into the partial pressure helmet shell which is basically our full pressure helmet shell. We evaluated both versions 'mask to head' and 'mask to suspension'. There appears to be no real advantage of one over the other as far as small head movements and breaking of the mask and face seal. There would be a distinct advantage (simplicity) if the mask could be suspended to the head suspension and perform satisfactory. We decided to proceed on both methods for more thorough evaluation.

It is my belief that the area of most concern will be the hose, from regulator to mask, since its flexibility and weight will most effect pilot acceptance of this concept. I evaluated a single regulator outlet which would involve injection but ruled this out because of the inherent problems in an injection type system. I feel that the best breathing characteristics can be maintained by separate hoses for sensing and oxygen delivery.

28 February 1964

EG - 4 March 1964

Joe's people feel they can fabricate very light flexible hoses with a smooth bore and wire reinforcement. We discussed the hose construction and will attempt to fabricate the delivery hose within the sensing hose. This hose would make a single connection at the mask and split to a 'Y' shape at the regulator. If the "Y" hose presents problems such that our delivery will be delayed, we plan on using two separate hoses until such time as the "Y" hose can be perfected.

The following points were decided on:

(1) Mask Inlet Fitting (I will supply two (2) versions)

- a) To be parallel to or 30° maximum from mask (3/8 ID).
- b) Swivel, if possible (for donning helmet)
- c) Least amount of protrusion inside mask.
- d) A baffle to diffuse oxygen flow (1/8 ID)
- e) Safety wire hose to fitting (double)
- f) Material plastic (nylon)

(2) Microphone, Mounting and Cord

The piece I supplied appeared to be satisfactory and I shall make three more pieces less microphone.

(3) Exhalation/Anti-Suffocation Valve

To be mounted on flat on right side of cheek. To be flange mounted, modified to incorporate anti-suffocation flapper. I have this item 90% complete but must add more resistance to the reverse flapper valve for pilot awareness.

(4) Head Harness

The head harness suspension will be the partial pressure helmet suspension located approximately 1" to the rear of the present location. It will be cut down to about 1/2 the thickness which was used on [] suit which used the neck seal.

25X1A

(5) Visor Pigtail

It appears that the visor pigtail must be on the surface of the helmet immediately below the visor knob. A coil spring will be used to retain the pigtail and prevent its protrusion at the side of the helmet. This is subject to refinement A/O change.

(6) Aneroid Visor Release

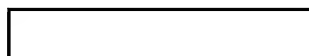
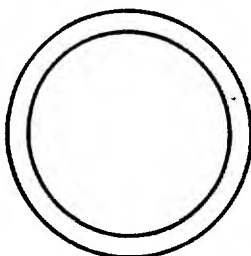
To be located approximately 4 inches up from the left hand visor knob to the rear of the visor. The device consists of an aneroid released spring force which releases a catch allowing the visor to spring down in place. The release catch can be depressed for manual override. Joe's people are working up the installation configuration and will determine the reset altitudes, etc.

(7) Light Weight Helmet

Hypodermic needle tubing will be used as a shell with approximately 1/2 the fibre glass presently used in the helmet.

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Next 1 Page(s) In Document Exempt

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OSA - 1081-64

AM-1057 A

19 February 1964

25X1A

25X1A

TO: [REDACTED]

Dear Joe:

Enclosed you will find the write-up of our meeting held February 13th on the new helmet mask assembly development. I have expanded the descriptions under the three phases slightly, however, it is pretty much as discussed in the meeting.

We anticipate having [REDACTED] at your plant for at least one day next week to actively pursue this program. As it develops, the schedule we are considering fits reasonably well with the schedule [REDACTED] proposed in a recent letter to John P. The following are comments made by Ed in his letter, a copy of which was hand carried back by [REDACTED]

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1. Make a lightweight helmet using the present neck ring. This will permit direct interchangeability with present suits.
2. Include a single visor aneroid operated to close at 30,000 feet altitude pressure.
3. Visor to be tinted for glare.
4. There is to be no face dam - some vent air is permitted to exit around face.
5. Install a light comfortable mask connected to dual pressure regulators in the helmet
6. Mask to eventually have inflight feeding port.

AM-1057
19 February 1964

7. Size the vent hoses to the helmet in order to restrict the flow across the face and to permit operation of the suit vent valve.

The David Clark Company should be doing the above mentioned items. Similarly, Firewel on their part should do the following:

1. Cooperate with David Clark in matching the breathing regulators to the mask.
2. Conduct qualifying tests in their chamber of the mask and lightweight helmet combination.

I do not believe that it is important to place the exact responsibility in these areas as Ed expressed. All he is interested in is to get the job done, the sooner the better, with qualified hardware. He strongly suggested that a prototype helmet be available in 30 days. This would be the first week in May according to his schedule, however, his comments on the lightweight shell are such that he believes we should have the lightweight helmet mask assembly available at that time. It is my opinion that if we meet our proposed schedule we will be doing the job required. If we are able to speed up the lightweight shell development some - do so.

Ed stated that if you require a good source for a light weight molded fiberglass helmet shell he can supply them. I do not know exactly what this means but I am sure if anyone can make an adequate lightweight helmet to fit the functional requirements and the ballistic requirements you can do so. I am enclosing a copy of the visual aids Ed used in discussing the mask helmet configuration for your convenience.

The Table of Helmet Weights seems to be a little out of order, particularly in the visor area plus the fact there are no provisions made for weight of the helmet suspension for the lightweight version.

I would like to reemphasize the importance being placed on this program. Ed believes it will solve many problems now plaguing us.

Very truly yours,

p
Encl.

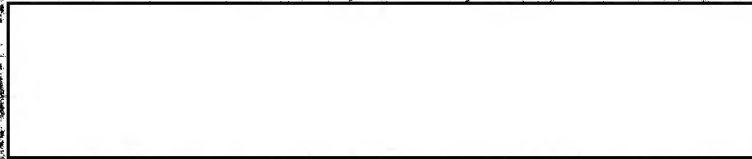
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25X1A

SPECIAL PROJECT MEETING NOTES

13 FEBRUARY 1964

PRESENT:



25X1A

The principle area covered was the investigation program for the mask helmet assembly suggested during the Suppliers Conference on January 29th. During the discussions it was decided to break the program down into three phases.

Phase 1 - Due March 16th

Initial assembly of the mask helmet will use the present shell and regulator. The face dam will be removed to permit the use of a simple light weight low pressure mask and attaching harness. The present standard visor will be used but will be wired direct rather than use the present spring contacts. Removal of the face dam will require development of a new helmet support and harness system. The basic concept will be that the breathing mask will be attached to the head through an independent harness. The helmet will be located to the head by a separate mounting. There will be no direct harness connection between the mask and the helmet. Mask styles should be investigated of the commercially available variety. A mounting harness will be tailored to fit the installation. Hopefully the assembly will be flight worthy - minimum anticipated performance would be good enough for chamber evaluation.

We should get the 1049 suit assembly to [redacted] within 25X1A ten days. All provisions in the present helmet must be incorporated in the new system such as anti-suffocation. The mask should have a front tension device for adjustments. Modify the suit ventilation system as necessary and make provisions for normal face piece open conditions.

[redacted] later reported that 1047's equipment is available for this program.

Phase 2 - Due May 15th

The automatic visor closing features are to be developed. Included are: aneroid actuator closure, manual release and the "G" force actuated release.

February 4, 1964

Dear John:

Subject: Lightweight Helmet with Oxygen Mask

At our meeting of January 29, we arrived at a consensus of opinion that we should pursue the development of the oxygen mask concept in order to eliminate many of the pilot's valid operational criticisms of the present full pressure suit. I would like to suggest a program to build prototypes of this concept for our pilots to use as soon as possible.

While it is true that we demonstrated a working system of oxygen mask and full pressure helmet, we are not equipped in our shop to do this particular type of development work as well as David Clark or Firewel. I believe that David Clark should develop the mask and helmet. They should work with Firewel to match the dual breathing regulators and qualify the system in Firewel's tank test.

Since this program is primarily only that of marrying known hardware items, I would expect it to go rather rapidly. We should have prototype helmets in 90 days. If David Clark requires a good source for a lightweight molded fiberglass helmet shell, we can supply this component. The attached table indicates practical goals for the lightweight helmets.

To implement this program, David Clark should do the following:

1. Make a lightweight helmet using the present neck ring. This will permit direct interchangeability with present suits.
2. Include a single visor ameroid operated to close at 30,000 feet altitude pressure.
3. Visor to be tinted for glare.

Page 2

4. There is to be no face dam - some vent air is permitted to exit around face.
5. Install a light comfortable mask connected to dual pressure regulators in the helmet.
6. Mask to eventually have inflight feeding port.
7. Size the vent hoses to the helmet in order to restrict the flow across the face and to permit operation of the suit vent valve.

Similarly, Firewel on their part should do the following:

1. Cooperate with David Clark in matching the breathing regulators to the mask.
2. Conduct qualifying tests in their chamber of the mask and lightweight helmet combination.

I would like to monitor this program very closely and make use of our pilots during the prototype stage in order to assist arriving at a suitable combination of hardware.

With regard to the aircraft portion of the oxygen system, we are not too far from having a completely satisfactory system. The addition of the equalizer valve, which we are building, should be the last modification.

Firewel should stop all work on the valve they are proposing. It has inherent dangerous characteristics which are unacceptable. All other Firewel equipment in the airplane's oxygen and nitrogen systems is now working satisfactorily. In fact, it usually is pretty good.

Well now!

I believe this concept will go a long way towards making our pilots more comfortable and thus ensuring a greater success of our very tough mission. I would recommend that this program be pursued.

Sincerely,

Enclosures:

1. Table of Helmet Weights
2. Proposed Operational Suit Configuration

TABLE OF HELMET WEIGHTS

	<u>PRESENT</u>	<u>LIGHTWEIGHT</u>
NECK RING	. 28	. 28
VISOR, OUTER	. 40	. 40
VISOR, INNER	. 94	0
EARPHONES, ETC.	. 85	. 60
REGULATORS	. 88	. 88
BARRIER	. 50	"
SHELL	2. 50	1. 25
ANEROID MECHANISM	<u>0</u>	<u>. 50</u>
	6. 35 lbs.	3. 91 lbs.

PROPOSED OPERATIONAL SUIT CONFIGURATION

1. FLY MISSIONS WITH VISOR RIMMED AS IN DYNASOAR SYSTEM
2. ELIMINATE FACE PLATE REFLECTIONS
3. ELIMINATE RICE SEAL & CHAFING
4. IMPROVED HEAD VENTILATION BY FACE
5. ELIMINATE EXCESSIVE OXYGEN CONSUMPTION BY USE OF MASK
6. DECREASE SUIT VENT BACK PRESSURE
7. ELIMINATE FACE PLATE FOGGING & HEAT OBJECTIONS
8. CLOSE VISOR IF CABIN ALTITUDE REACHES 30,000 FT.
 - A. MANUALLY (ORIGINALLY MANUAL LIGHT)
 - B. AUTOMATICALLY AS IN DYNASOAR
9. COMFORTABLE LOW PRESSURE MASK POSSIBLE BECAUSE OF LOW CABIN OR SUIT PRESSURE DIFFERENTIALS
10. MOVE BULKY ZIPPERS FROM CHEST TO BACK



TRIP REPORT

25X1A

-- 28 FEBRUARY 1964

PERSONS CONTACTED:

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28 February 1964

EG - 4 March 1964

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28 February 1964

EG - 4 March 1964

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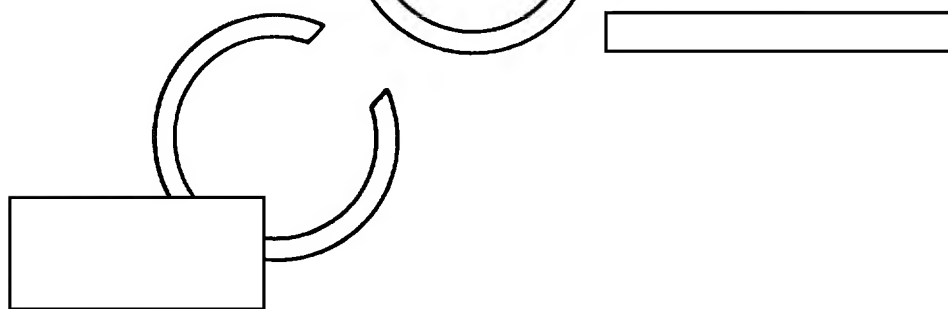
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